



# ECI Residential Door Operator Installation Manual

Rev : 2.2  
Date : 4/16/2018  
Manual Number : 24

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ECI Residential Door Operator Installation Manual

DATE	REVISION	DESCRIPTION
6/9/2016	1.1	PRELIMINARY FOR REVIEW
6/14/2016	2.0	Release
9/6/2016	2.1	Added Dimensions and mounting hole locations
4/16/2018	2.2	Changed Installation separating Left and Right hand operators

PRELIMINARY



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## 1 Warnings and Disclaimer

Thank you for purchasing equipment from ECI America, INC. We want your new equipment to operate safely. Anyone who installs or uses this equipment should read this publication (and any other relevant publications) before installing or operating the equipment.

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation and operation is in compliance with the latest revision of these codes.

There may be local regulatory or government offices that can also help determine which codes and standards are necessary for safe installation and operation. Equipment damage or serious injury to personnel can result from failure to follow all applicable codes and standards. We do not guarantee the products described in the publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation or operation.

Our products are not fault-tolerant and are not designed, manufactured or intended for use or resale as online control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines or weapon systems in which the failure of the product could lead directly to death, personal injury, or severe physical or environmental damage (“High Risk Activities”). ECI America, Inc. specifically disclaims any expressed or implied warranty of fitness for High Risk Activities.

This publication is based on information that was available at the time it was printed. WE reserve the right to make changes to the products and/or publications at any time without notice and without any obligation.

## 2 Trademarks

All trademarks or registered product names appearing in this document, as they pertain to Electronic Controls, Inc., are the exclusive property of Electronic Controls, Inc.

## 3 Conventions Used



When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note. Notes represent information that may make your work quicker and more efficient. The word **NOTE:** in boldface will mark the beginning of the text.



When you see the “exclamation point” icon in the left hand margin the paragraph to its right will be a warning. The information could prevent injury, loss of property, or even death in extreme cases. Any warning in this document should be regarded as critical information that should be read in its entirety. The word **WARNING:** in boldface will mark the beginning of the text.

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## 4 Safety Information



Know the safety hazards related to any procedure you are about to perform. Know what equipment has been specified for each specific contact and know what tools and materials you should plan to have available. Before connecting electrical wiring, take precautions to prevent accidents from happening to yourself and others around you.

### **ALWAYS CONSIDER SAFTY FIRST!**



- Wear a hard hat when working in the hoist way.
- Wear safety glasses or goggles when using power tools
- Always wear protective gloves when installing or removing access covers, conduits, wireway or electrical devices.
- When working on car canopy, always be aware of where the sides of the car are located.



- Use properly grounded cords and power equipment (ground fault circuit interrupters).
- Make sure there are proper clearances in hoist way between the car and other devices. Before connecting wiring, cover sharp edges to keep hands and arms from being cut.
- Always know where other people are and how the elevator wiring can affect their safety.
- Safety lock and tag out procedures are always required before performing and kind of service, repair, adjustment, lubrication or inspection of power equipment.
- To reduce the danger of electrical shock, always make sure electrical connections are secure. Also make sure no bare wires are exposed after pulling cable.

- Use a circuit tester to be certain the circuit is not active before touching it.



## 5 System Overview

### 5.1 Door Control Board

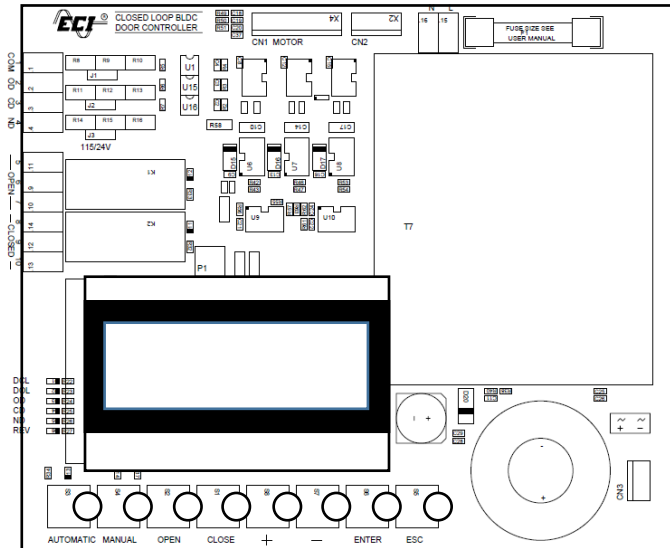


Figure 1 - Door Control Board

#### 5.1.1 Electrical

Power – 120VAC

Input – 120VAC or 24VDC

Motor Voltage –

#### 5.1.2 Connections

L – 120VAC line

N – 120VAC Neutral

COM – Common for 115VAC/24VDC command inputs

OD – Open command input. 115VAC or 24VDC as determined by jumper setting.

CD – Close command input. 115VAC or 24VDC as determined by jumper setting.

ND – Nudge command input. 115VAC or 24VDC as determined by jumper setting.

CN1 MOTOR – Connector for motor.

CN2 – Limit switch connector.

OPEN 5 – OPEN relay Common

OPEN 6 – OPEN Relay N.C.

OPEN 7 – OPEN Relay N.O. Connected to OPEN Common when at OPEN LIMIT

CLOSED 8 – CLOSE Relay Common

CLOSED 9 – CLOSED Relay N.C.

CLOSED 10 – CLOSED Relay N.O. Connected to CLOSED Common we at CLOSE LIMIT

#### 5.1.3 Fuses

2 AMP 250 Volt

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### 5.1.4 LEDs

- DCL – Door Close Limit. On when close limit switch is closed. If limit switches are installed.
- DOL – Door Open Limit. On when open limit switch is closed. If limit switches are installed.
- OD – Open Command. On when an open command is present at input
- CD – Close Command. On when close command is present at input.
- ND – Nudge Command. On when a nudge command is present at input.
- REV – Reverse. On when REOPEN is triggered.

### 5.1.5 User Interface

#### 5.1.5.1 Keypad

**AUTOMATIC** – Puts board in automatic mode. Door board will respond to OPEN, CLOSE and NUDGE commands OD, CD and ND

**MANUAL** – Puts door board in manual mode where open and close commands are controlled by the OPEN and CLOSE keys.

**OPEN** – Pressing key will open door with the door board in manual mode

**CLOSE** – Closes the door with the door board in manual mode

**PLUS (+)** - Moves cursor UP in the display menu and INCREASES parameter values.

**MINUS (-)** - Moves cursor DOWN in the display menu and DECREASES parameter values

**ENTER** – Selects menu displayed on screen and enters the parameter currently selected.

**ESC** – Used to move to previous menu

#### 5.1.5.2 Main Menu

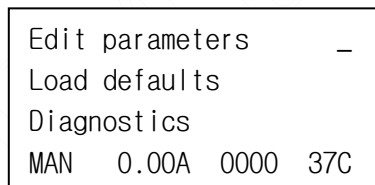


Figure 2 - MAIN MENU

Figure 2 shows the MAIN MENU. Pressing the “-“ key moves the cursor down to show remaining menu selections:

Learning cycle

Technical support

The bottom row of the display shows from left to right:

Operating mode (AUTO/MANual), current to motor, encoder position, temp of output drivers

#### 5.1.5.3 Edit Parameters

Selecting EDIT PARAMETERS enters the parameter menu. Pressing the ENTER key will select the parameter for editing.

**Close Speed** – Initial closing speed. Min 10, max 100, default 80

**Close slow speed** – Closing speed after braking position. Min 10, max 100, default 20

**Cl braking pos** – Encoder position from the CLOSE LIMIT where Close Slow speed engages. Min 2, max 1000, default 500

**Close torque** – Amount of current applied to the motor in the close direction. Min 10, max 300, default 140

**Cl holding force** – Force applied to the door when door is fully closed. Set to 0 not used.

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- Open speed** – Initial speed in the open direction. Min 10, max 100, default 80
- Op slow speed** – Speed of door after braking position. Min 10, max 100, default 20
- Op braking pos** – Encoder position from the OPEN LIMIT where the OPEN Slow speed engages. Min 2, max 1000, default 500
- Open torque** – Amount of current applied to the motor in the open direction. Min 10, max 300, default 140
- Op holding force** – Force applied to the door when door is fully open. Set to 0 not used
- Acceleration** – Rate at which the motor will accelerate. Min 5, max 250, default 100
- Deceleration** – Rate at which the motor decelerates. Min 5, max 250, default 225
- Nudge** – Min 5, Max 100, default 30
- Timeout** – Setting for an open or close max time. If timeout occurs, motor is stopped until another command is received. Min 5, Max 20, default 15
- Reopen trigger** – Sensitivity setting for an obstruction during a close cycle. The higher the number the more sensitive. Min 0 (off) Max 10, default 5.

### 5.1.5.4 Load Defaults

Selecting Load Defaults will reset all parameters to their default settings. It does not affect the learn cycle settings.

### 5.1.5.5 Diagnostics

```

(C) 2014 ECI
VBUS   : XX.XV
CYCLES : XXXXXX
MAN    0.00A 0000 23C
```

Top row of the DIAGNOSTICS screen shows the present VBUS voltage. VBUS is 40 VDC  
Second row display the number of cycles since manufacture.

### 5.1.5.6 Learning cycle

Selecting LEARNING CYCLE will perform a learning cycle on the gate operator when fully installed. See section 6.5 for details

### 5.1.5.7 Technical Support

Selecting TECHNICAL SUPPRT will display Electronic Controls Inc. contact information





## 5.2 Gate Operator

### 5.2.1 Dimensions

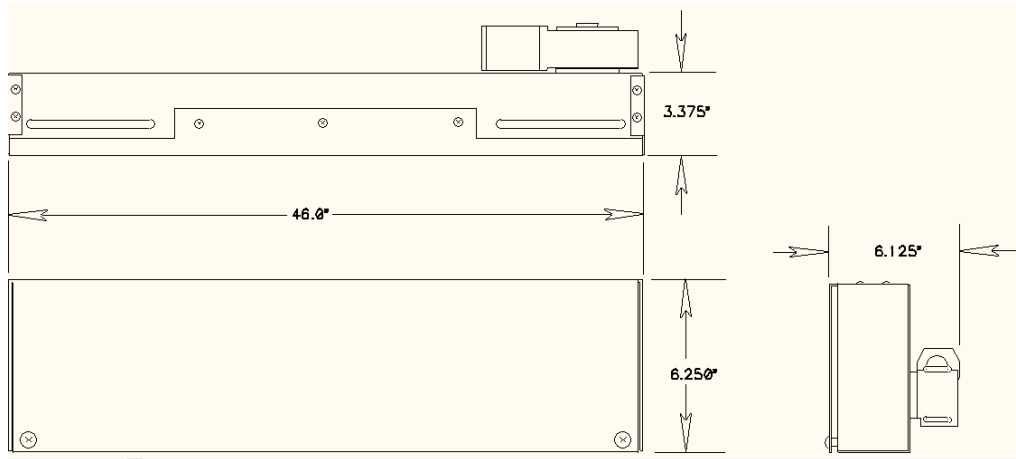


Figure 3 – Dimensions

## 6 Installation of Gate Operator

1. Remove covers from Gate Operator and check for any damage.
2. Place Gate Operator on top of car so it is set back .25 inches from the edge to the car top. See Figure 9 - Operator Side View. Do not secure operator at this time.
3. You may need something under the motor for support so the operator does not tip back.

### 6.1.1 Configuring Gate Operator

Figure 4 shows how to configure the gate operator for your application. Be sure the FULLY CLOSED stop (for your installation) is adjusted a minimum of .25 inches from the drive wheel.

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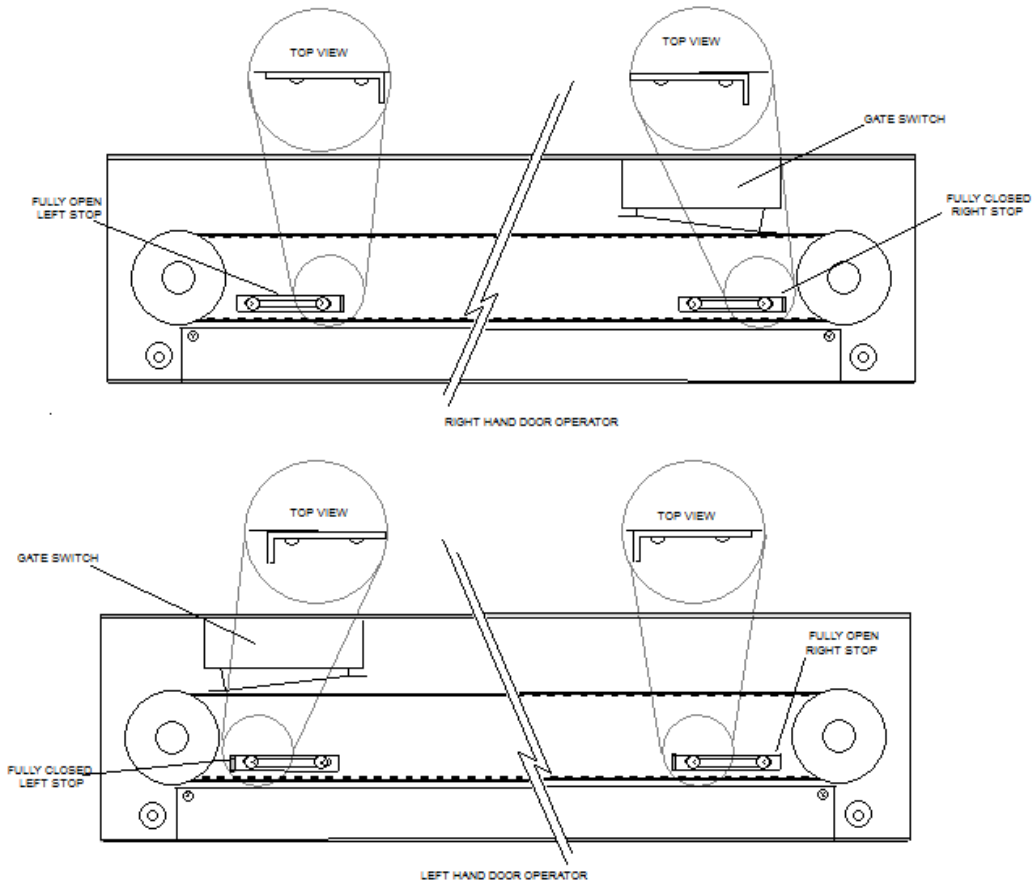


Figure 4 - Gate Operator Configurations)

### 6.2 Configuring Gate Plate and Bracket

Configure the magnet and Gate Switch Roller for Left or Right Hand operation as shown in Figure 5. The Gate Switch should be mounted on the Right side of the Operator for Right Hand and the Left side for Left Hand Operation



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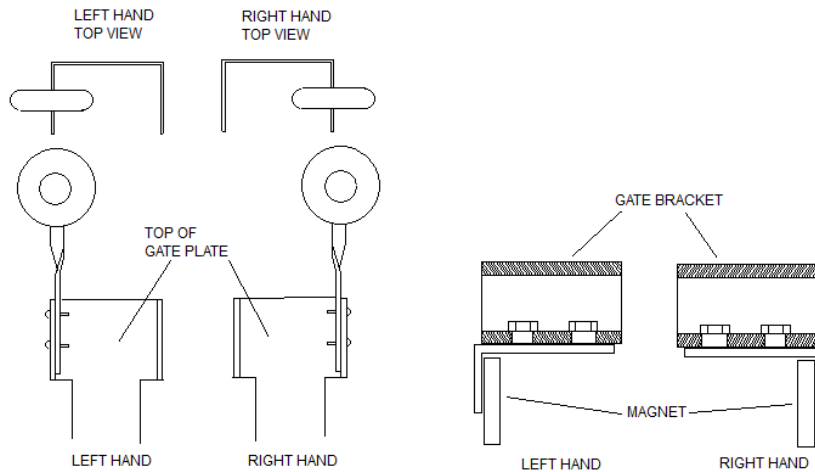


Figure 5 - Left/Right Hand Configuration

### 6.3 Attaching Gate Plate

#### 6.3.1 Right Hand Operator

1. Manually move the Gate Bracket against the RIGHT SIDE FULLY CLOSED STOP.
2. Move the Gate to the fully closed position making sure the gate is flush with the inside of the entry jam.
3. Bring the Flag of the gate plate up to the magnet so it catches. Be sure that the flag is not touching any part of the operator. If needed, move the Gate Operator to align Gate Bracket and Plate with the fully closed gate.
4. Attach the Gate Plate to the Gate. Shimming between the Gate Plate and the Gate may be required to achieve the .25 inch clearance between the gate Plate and top edge of the car as shown in Figure 9 - Operator Side View (Right Hand Operation).
5. With the Gate Plate attached, push the gate away from the magnet and move the gate through its full travel making sure the plate does not rub against the front edge of the car top or the Gate Operator.
6. Fully close the Gate so the magnet of the operator catches the Gate Plate Flag.
7. With the Gate Bracket flush against the STOP as in Figure 6 – Right Hand Operator (Fully Closed Position). Check that the Gate is flush against the jam of the entry to the car. If not, adjust the Gate Operator assembly until the Gate is flush.
8. Check that the .25 inch clearance of the Gate Operator to the Front edge of the Car top then secure the Operator in place with appropriate hardware using the slots provided on the left and right sides of the Operator. See Figure 8 - Mounting Hole Locations (top view)
9. With the gate in the fully closed position, adjust the GATE SWITCH so the switch contacts are closed.
10. Manually move the Gate along with the Gate Bracket to the fully open position.
11. Adjust the LEFT STOP so it is against the GATE PLATE as shown in Figure 6 – Right Hand Operator (Fully Open Position).

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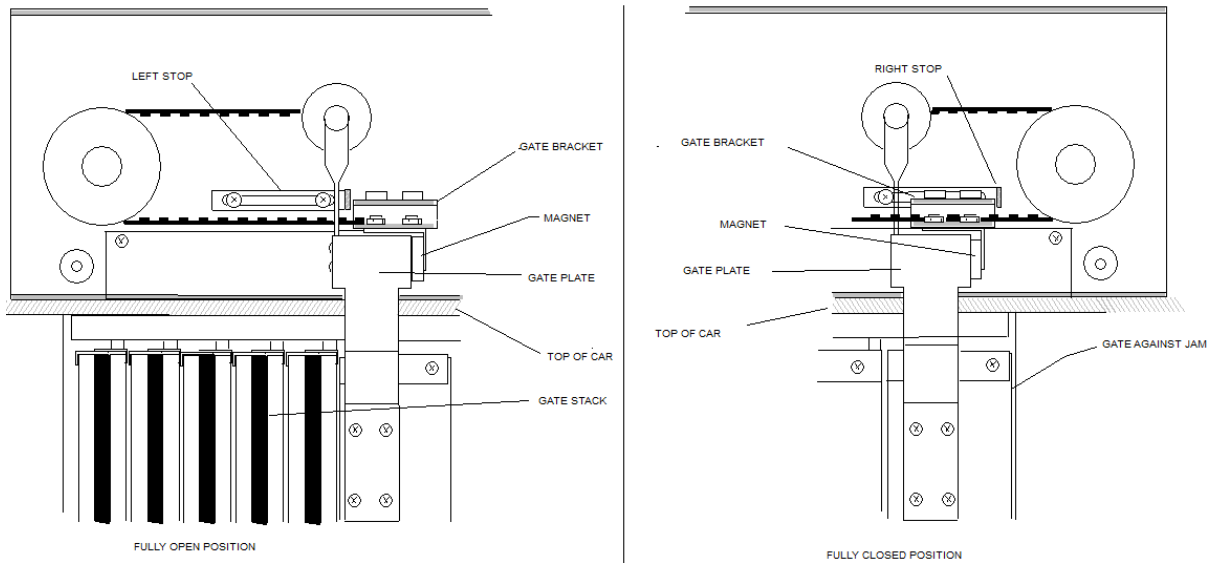


Figure 6 – Right Hand Operator

### 6.3.2 Left Hand Operator

1. Manually move the Gate Bracket against the LEFT SIDE FULLY CLOSED STOP.
2. Move the Gate to the fully closed position making sure the gate is flush with the inside of the entry jam.
3. Bring the Flag of the gate plate up to the magnet so it catches. Be sure that the flag is not touching any part of the operator. If needed, move the Gate Operator to align Gate Bracket and Plate with the fully closed gate.
4. Attach the Gate Plate to the Gate. Shimming between the Gate Plate and the Gate may be required to achieve the .25 inch clearance between the gate Plate and top edge of the car as shown in Figure 9 - Operator Side View (Right Hand Operation).
5. With the Gate Plate attached, push the gate away from the magnet and move the gate through its full travel making sure the plate does not rub against the front edge of the car top or the Gate Operator.
6. Fully close the Gate so the magnet of the operator catches the Gate Plate Flag.
7. With the Gate Bracket flush against the STOP as in Figure 7- Left Hand Operator (Fully Closed Position). Check that the Gate is flush against the jam of the entry to the car. If not, adjust the Gate Operator assembly until the Gate is flush.
8. Check that the .25 inch clearance of the Gate Operator to the Front edge of the Car top then secure the Operator in place with appropriate hardware using the slots provided on the left and right sides of the Operator. See Figure 8 - Mounting Hole Locations (top view)
9. Manually move the Gate along with the Gate Bracket to the fully open position.
10. Adjust the LEFT STOP so it is against the GATE PLATE as shown in Figure 7- Left Hand Operator (Fully Open Position).
11. With the Gate fully closed, adjust the Gate Switch on the roller so the switch contacts are closed.



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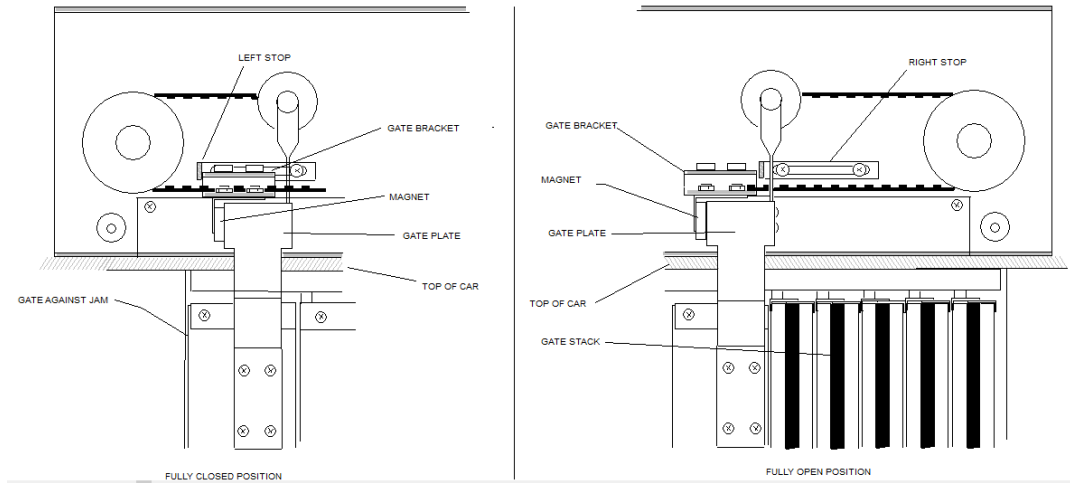


Figure 7 - Left Hand Operator

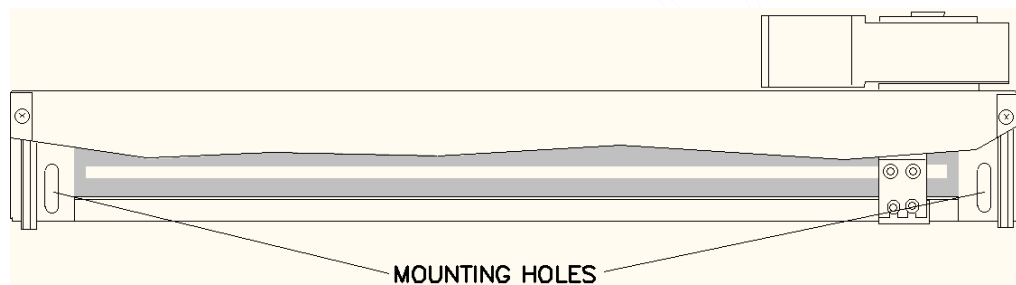


Figure 8 - Mounting Hole Locations (top view)

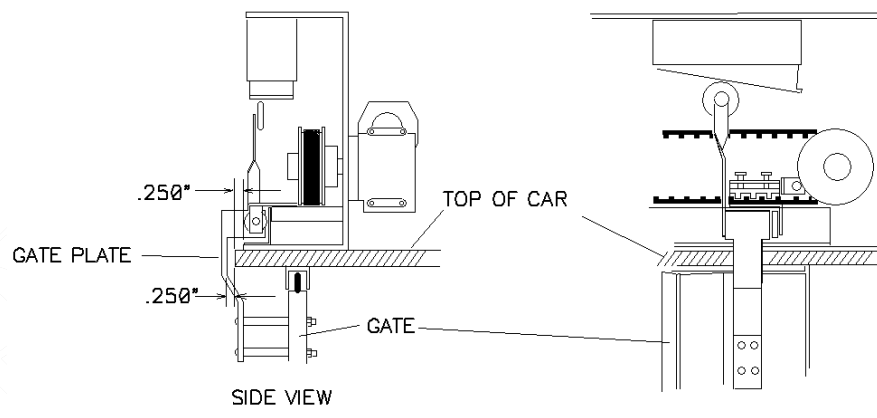


Figure 9 - Operator Side View (Right Hand Operation)

### 6.4 Connecting Electrical

1. Configure the Door Board for 110 or 24 volt operation as shown in Figure 10.

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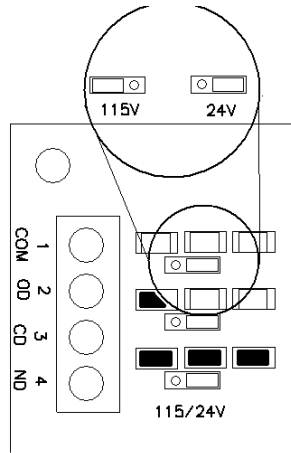


Figure 10 - Input Configuration

2. Connect controller inputs to appropriate pins then connect Motor cable to CN1 of Door Board.
3. Connect 120VAC line and neutral to pin L and N on Door Board.
4. Apply Power to board.

The display should show:

```
(C) ECI 2014
Please run learning
cycle first!
MAN 0.00A 0000 25C
```

### 6.5 Learning Cycle

1. With the display showing “Please run learning cycle first!” press the ENTER button
2. Display should show:

```
Learning cycle
Left hand operator _
Right hand operator
MAN 0.00A 0000 37C
```

3. Use the “+” or “-“ button to move cursor to proper operator type. Left hand operator opens left to right. Right hand operator opens right to left. Press ENTER to start learn cycle
4. The door should perform the learning cycle by opening then closing the door 2 times. When complete the display shows:

```
Learning cycle
success
(ESC)
MAN 0.00A 0000 37C
```



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5. Press ESC button to save parameters.
6. At this time the operator is functional. While in MANUAL mode press and hold the OPEN button to open the gate. Check for smooth operation and that nothing scrapes or rubs.
7. Press and hold the CLOSE button until gate is fully closed. Check that the gate is flush with the jam of the entry way. If not, adjust the STOP then perform another LEARNING CYCLE.
8. At this time, speed adjustments can be made through the EDIT PARAMETERS menu.
9. It is important to remember to ESC back to the MAIN MENU when adjustments are complete or changes will not be saved to permanent memory.
10. Replace the covers to the gate Operator and perform several OPEN and CLOSE cycles in MANUAL mode to ensure smooth operation and no scraping or rubbing of the GATE PLATE.
11. Press the AUTO button of the DOOR BOARD and now the operator is ready for automatic use.

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